REMARKS

The Examiner's action dated January 10, 2005, has been received, and its contents carefully noted.

In response to the objection to the Specification and Abstract, they have been amended by deletion of the reference numerals "12" and "15", which are not needed to understand the disclosure of the present invention.

In response to the claim objection presented in section 3 of the Action, claims 4-10 have been amended to place them in singly dependent form.

In view of the above, it is requested that the objections presented in sections 2 and 3 of the Action be reconsidered and withdrawn.

The rejection of claims 1-3 as unpatentable over Jyumonji in view of Tomelleri is respectfully traversed.

The present invention is directed specifically to a device for the non-contact measurement of the position of the teeth of the workpiece with pre-cut teeth. Neither of the applied references is intended to perform measurements on such a workpiece. It is understood that, as a general rule, the nature, or intended purpose, of the claimed device is not, in and of itself, given patentable weight. However, identification of the nature of the device in an application claim must be given weight when the body of the claim gives

"life and meaning", to such introductory recitations. In the present case, as will be seen from the discussion to be presented below, the recitations in the body of each of claims 1 and 11 does require that consideration be given to the nature of the device, as defined in the preamble of the claim.

Thus, claim 1, as amended, now specifies that the measuring probe is movable "in a fixed swivel plane between only a first fixed measuring position and a second fixed retracted position". A movement having these characteristics is appropriate and desirable for measuring the position of the teeth of a workpiece with pre-cut teeth on the spindle of a gear finishing machine, as defined in the preamble of claim 1, as well as the preamble of claim 11.

Movements having these characteristics are not disclosed in either of the applied references. Indeed, each of these references discloses apparatus that is intended to perform measurements at a plurality of measuring positions, which is essential to achievement of the results disclosed in these references.

It is therefore clear that it would be contrary to the teachings of each of these references to move a measuring probe between only a first fixed measuring position and a second fixed retracted position.

More specifically, Jyumonji discloses a multiple-sensor robot system for obtaining two-dimensional images and three-dimensional position information. As shown in Figure 1, the system comprises a robot controller 1, an image processor 2, a laser sensor 10, a laser sensor control section 20, a camera 30 and a robot 40. Laser sensor 10 is mounted on an arm end of robot 40 and camera 30 is mounted independently of the robot. Camera 30 constitutes, together with image processor 2, a large area sensor disposed so that the field of view 31 of camera 30 covers a supply area 50 to which a workpiece W is supplied. Laser sensor 10 serves as a small-area sensor and may be either a spotlight projection device or a slit light projection device. As shown in Figure 1, sensor 10 has a position 1 which is a starting position, a position 2, which is an approached position and a position 3 which is a measurement terminating position. Continuous measurement is performed as the laser measuring beam moves from position 2 to position 3.

Thus, according to the disclosure of this reference, camera 3 has a single, fixed position and laser sensor 10 performs measurements while its beam moves over a continuous measuring path, and thus exhibits a plurality of measuring positions.

Tomelleri discloses an apparatus for measuring and/or checking the spatial positions and angular orientations of characteristic spots or areas in mechanical structures or members, particularly on motor vehicle bodies or wheels. As shown in Figure 1 of this reference, the apparatus includes an articulated arm 4 consisting of an element 12 that is rotatable relative to a carriage 7 and a parallelogram 13 that is pivoted to the free end of element 12. Element 13 is rotatable about an axis parallel to the axis of rotation of element 12 and is also arranged to pivot about axes that are perpendicular to the axis of rotation of element 12. Mounted at the free end of element 13 is a supporting element 14 with a swinging head 15 that carries a tracer point 10. Swinging head 15 is capable of rotating about an axis C parallel to the axis of rotation of element 12 and about an axis D perpendicular to the axis of rotation of element 12.

Like the apparatus of Jyumonji, the apparatus of Tomelleri is used to carry out measurement of characteristic points or areas in motor vehicle bodies or other members in order to define the spatial configuration thereof and to determine how much these values may differ from reference values. In other words, the apparatus is designed to perform measurements at a plurality of spatially distributed measuring points.

Thus, neither of these references discloses a device that includes any type of measuring probe that is movable in a fixed swivel plane between only a first fixed measuring position and a second fixed retracted position, as defined in claim 1 of the present Application.

In this connection, it should be noted that in the system of Jyumonji, laser sensor 10 is supported at the end of a robot arm that is mounted to pivot about a number of axes. Thus, the beam produced by laser sensor 10 is not movable only between two fixed positions.

Similarly, the parallelogram linkage of Tomelleri is movable, as a unit, about an axis A and tracer point 10 is movable about two mutually perpendicular axes. In each case, the measuring point can be located in any position in a three-dimensional space.

Therefore, it cannot be said that the beam of Jyumonji or the tracer point of Tomelleri is movable only between two fixed positions.

Newly submitted independent claim 11 is also directed to essentially the same device as claim 1, but includes a positive recitation of "a double parallelogram linkage including a holder carrying said probe". Neither of the applied references discloses a double parallelogram linkage. Such a linkage enables the probe to be placed in the

two fixed positions with a considerably higher degree of accuracy than does the single parallelogram linkage disclosed by Tomelleri.

Moreover, like claim 1, claim 11 specifies that the measuring probe is movable in a fixed swivel plane between first and second fixed positions, which features are not disclosed in either of the applied references.

In view of the foregoing, it is submitted that claims 1 and 11, as well as the claims dependent therefrom, clearly distinguish patentably over any proper combination of the applied references.

In addition, added dependent claims 21-24 further distinguish clearly over any combination of the teachings of the applied references. Claims 21 and 22 specify that the probe performs measurements only when in the first fixed position, while claims 23 and 24 specify that the parallelogram linkage is connected to a stationary structure so as to be movable only in the fixed swivel plane. These limitations are not disclosed in either of the applied references.

Accordingly, it is requested that the prior art rejection presented in section 5 of the Action be reconsidered and withdrawn, that all of the pending claims be allowed and that the Application be found in allowable condition.

If the above amendment should not now place the application in condition for allowance, the Examiner is invited to call undersigned counsel to resolve any remaining issues.

Respectfully submitted,

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